e-Learning Style Guide for the Virginia Department of Health (VDH)

Wednesday, February 15, 2006
Ver. 1.1

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Virginia Department of Health (VDH)
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VDH e-Learning Style Guide provides the standards to be followed when developing Web-based Training (WBT) and Computer-based Training (CBT) for the Virginia Department of Health. This Guide focuses on the following areas:

1. VDH General Courseware Design & Development Standards
2. Instructional Design Standards
3. Graphical User Interface - Menu and Navigation
4. Media Standards
5. Technical Standards
6. Writing Standards
7. Assessment Standards
8. Section 508 Compliance
9. SCORM Considerations
10. Quality Assurance

For clarification of these standards or for permission to deviate from VDH standards, contact Robert Johnson at (804) 864-7964.

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VDH General Courseware Development Standards

Development Process

e-Learning courseware will be developed using D^5™, a variation of the Instructional Systems Design (ISD) process known as the ADDIE model.

D^5™ is a notable improvement over the familiar ADDIE instructional systems design model. Specifically, D^5™ ensures that typical analysis-phase output is further defined to solidify the scope of the course for both instructional designer and client stakeholder alike. Additionally, where evaluation occurs *after* implementation in the ADDIE model, evaluation/revision takes place in D^5™ *throughout* the development lifecycle ensuring our efforts consistently hit the mark. The phases of D^5™ include:

Discover

SDC begins formulating the plan for the course. SDC meets with stakeholders, collects "raw" course content, and begins project planning. Deliverables: Instructional Design Plan, and the WBT Project Plan.

Define

SDC begins analyzing and organize the "raw" course content outlines each module at a detailed level. Deliverables: Course Design Guide (Course Outline, Performance Objectives, and Instructional Strategies).

Design

SDC develops Design Comps of what the presentation template will look like for client approval. Additionally, SDC Storyboards the course content. Deliverables: 1-3 Design Comps, and Storyboards.

Develop

SDC authors the course content (text, imagery, audio) and addresses technical considerations with the client's LMS. SDC also prototypes a course module or lesson. Deliverables: Prototype, and completed WBT Course.

Deliver

SDC and client install and test the course within the LMS then release it to the learner audience. Deliverables: the final VDH STD/HIV Certification WBT Course.

Evaluate/Revise

An ongoing event that is really not a "phase" at all. Evaluation/Revision points are built into the Project Plan throughout the project lifecycle. Deliverables: N/A

It's important to point out the reason and value in the Evaluate/Revise phase. Evaluate/Revise is analogous to the familiar ISD concept of Formative Evaluation in that during the entire course of design and development, a review/revise step should be built into the schedule from conception through go-live.

Each phase's output in turn becomes the input for the subsequent phase and at each transition point throughout development – at minimum – should be a built-in review/revise step to capture any and all errors in either the course's design or development. Doing so ensures that the initiation of each new project phase begins with the proper and correct input, to the extent possible. If an error goes uncaught, it can understandably "snowball" to eventually become a much bigger and broader issue that could potentially be more time consuming and expensive to correct further on down the development road.

Development Team

It is VDH's expectation that an **instructional systems designer (ISD), or someone on staff who can reasonably perform the duties of and ISD,** will be responsible for the design and development of all of the e-learning deliverables. In the appropriate phases of the project, VDH expects the ISD to work with a multi-disciplinary team that includes:

- Subject Matter Expert(s)
- Content Reviewer(s) (also Subject Matter Experts)
- Graphic Artist(s)
- Web Developer(s)/Programmer(s)
- Audio/Video Producer(s)
- Quality Assurance Specialist(s)
- VDH Instructional Systems Designer(s)

In some cases the ISD may perform multiple roles, such as all of the design, authoring, and graphic/media design responsibilities.

Deliverables

The following should be specified as deliverables in contracts for custom e-Learning courseware development:

Phase	Deliverables
Discovery	Instructional Design Plan Project Plan (Initial)
Define	Course Outline Performance Objectives Instructional Strategies
Design	Design Comps Storyboards Project Plan (Final)
Development	Audio Scripts All Media Prototype Courseware Final Courseware
Deliver	Final Courseware and Source Files
Evaluate/Revise*	Test Items as submitted in Storyboards, Beta, and Final Courseware

*VDH shall maintain ownership of the final courseware, including the underlying source code, including all audio, video and graphic files.

Instructional Design Standards

General Standards

Use the following general standards:

- Design for the following hierarchy: course, module, lesson, topic
- State learning outcomes (at course and module lesson levels minimally)
- Allow learner to navigate between courses and individual modules in any order he or she desires
- Include a "help" feature on how to use the courseware
- Provide the ability to bookmark a student's progress
- Design for a screen resolution of 800X600 pixels
- Write course welcome text, module welcome page text, and lesson welcome page text
- Design courses that are no more than 30 minutes in duration (approximately 25-35); exceptions to this standard may be approved by VDH
- Provide for each module the "what's in it for me"
- Provide a running page count ("X of X Pages") on each page of each module.
- Include a module summary page
- Provide introductory statements, transitional statements, and summary statements as needed to ensure a coherent flow across pages
- Do not assume that the learner will take modules or lessons in any particular order (If knowledge from a previous lesson or from the learner's work experience is needed to understand the new ideas that will be presented in the lesson, provide a brief summary of this knowledge.)
- Address one concept, procedure or item of instruction on each page
- Provide verbatim audio script text on the page, if audio is used
- Provide learners with information in the fewest steps and shortest time possible
- Use custom illustrations, where possible, to teach complex concepts
- Use royalty-free graphics and photographs to add visual interest
- Avoid stereotyping by race, gender or ethnicity; model diversity
- Develop module-level assessments; test every terminal learning objective (module-level assessments are listed as a discrete selection on the left-hand menu)
- Track student scores by module within the VDH's LMS, TRAIN.org

Levels of Interactivity

The level of interactivity to be provided in the courseware is agreed upon and documented in the work plan and further described in the analysis/design documents.

VDH uses the following definitions to describe the degree of interactivity that will be included in courseware:

- **Level I** – Passive. The learner acts solely as a receiver of information. The learner progresses linearly through course reading text from the screen, viewing video or listening to audio.
- **Level II** – Limited Interaction. The learner makes simple responses to instructional cues. The responses may include answering multiple choice or true/false questions.
- **Level III** – Complex Participation. The learner makes a variety of responses using varied techniques in response to instructional cues. Techniques may include building a model/diagram from available parts.

- **Level IV** – Real-Time Participation. The learner is directly involved in a life-like set of complex cues and responses. (Note: This would be a level developed for the style guide but is not something I believe you want to tackle in this RFP. Level IV can be expensive.)

VDH understands that decisions on the degree of interactivity in any e-Learning product are based upon relative importance of the content, budget, timeline, shelf life, and audience size. Minimally, VDH expects learners to interact with the courseware approximately every four pages.

Note: It may be appropriate to design modules within the same course for different levels of interactivity (e.g., one module may focus on foundational principles and another module may use complex, branched case studies for application of those principle; an introductory module might be developed at Level I whereas a later module might be developed at Level III).

Use of Interactivity to Present Instruction

- Engage the learner as frequently as possible through the use of interactive teaching strategies
- Include a wide variety of screen (interaction) types to keep the learner engaged throughout the course
- Develop and adhere to a standard set of instructions (learner prompts) for each screen (interaction) type

Embedded Practice

Use these standards to design and develop embedded practice exercises:

- Provide opportunities for unscored practice after each concept or skill is taught
- Provide the context for the practice activity (relate it to a concept or job skill in introductory text)
- Ensure that practice opportunities are directly linked to learning outcomes
- Use the standard VDH screen for embedded practice exercises

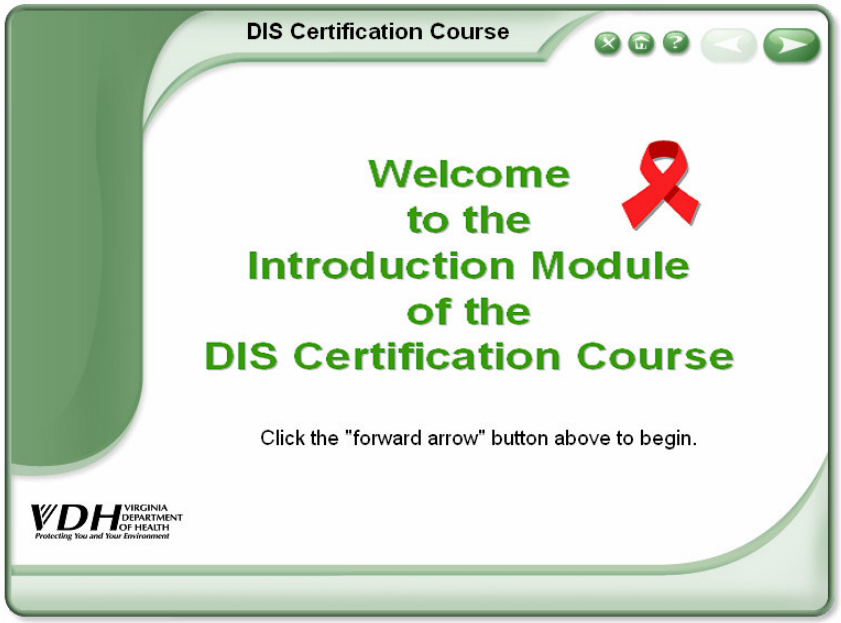
Learner Feedback/Remediation

Use these standards to write feedback for embedded practice exercises:

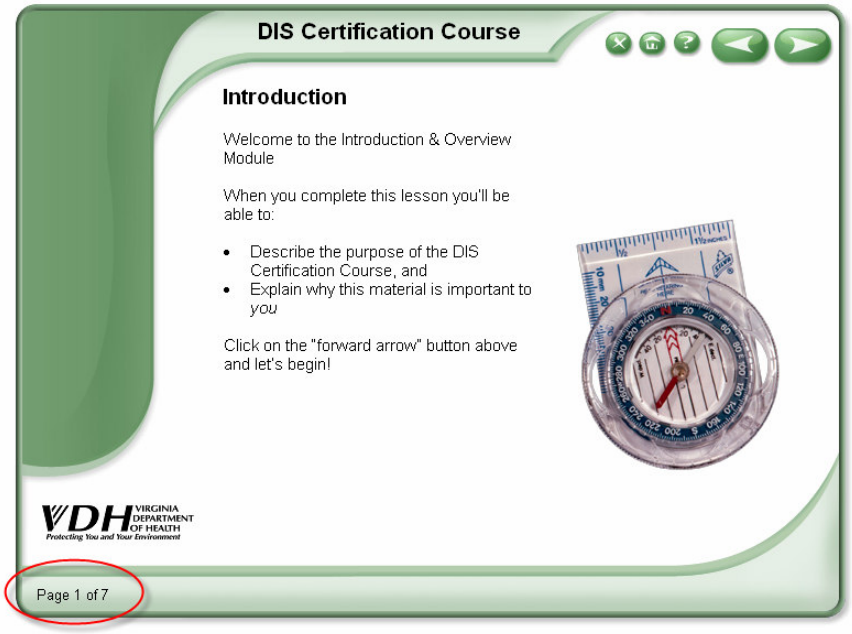
- Avoid using phrases such as “You are incorrect” or “That’s wrong.” Instead, use “Incorrect” followed by feedback that provides the learner with the correct answer when appropriate.
- Use “Correct” when the learner answers correctly; add additional language that paraphrases the correct answer.

Standard VDH Screen Types

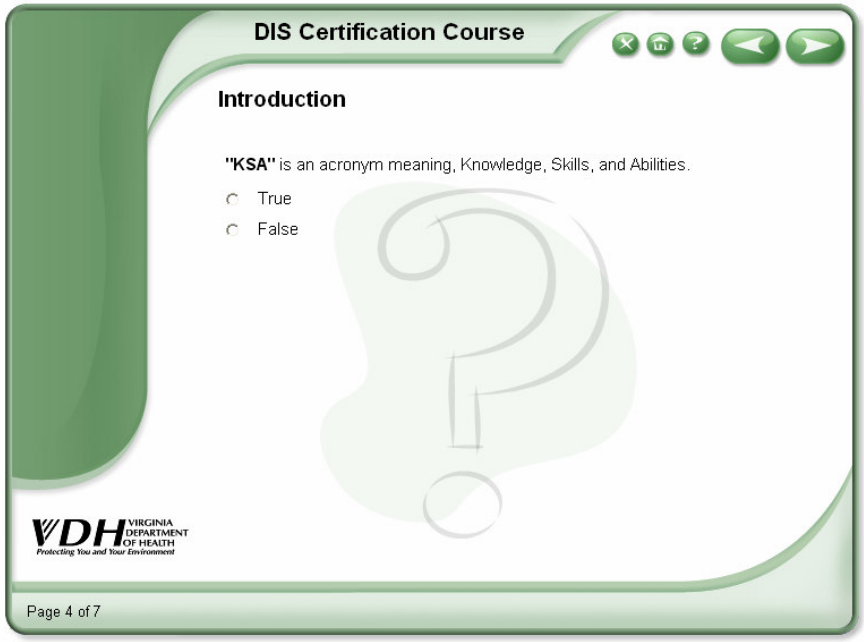
Module Home Page. The Module home page orients the learner to the overall module (describes the module goal and content). This page also provides instruction on how to begin the course. Learners are encouraged to complete the Help tutorial, if they have never taken a VDH WBT course before. Learners are given instructions to click on a screen cue to begin. See below:



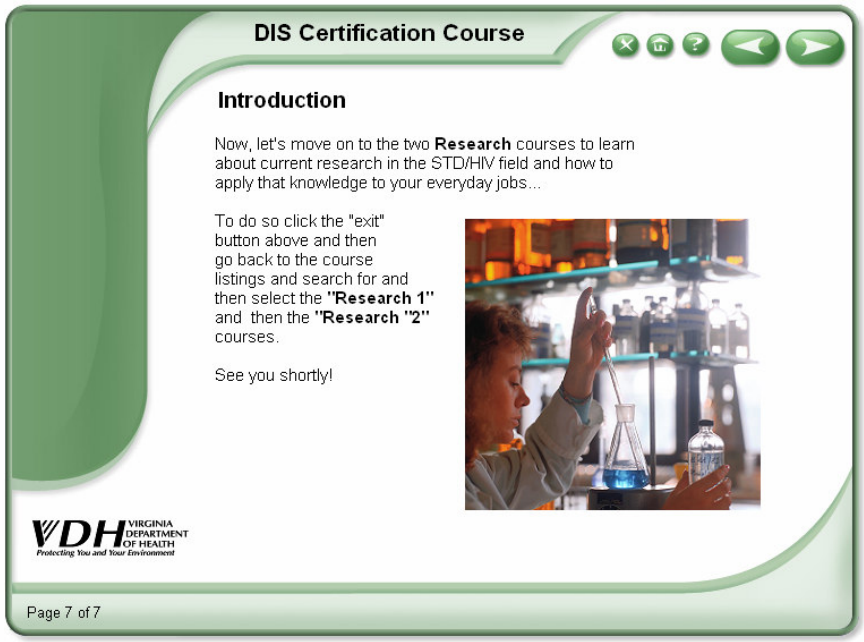
Module Intro Page. The module intro page orients the learner to the module. Most importantly, it captures the learner's attention and creates a tension for learning. This page should provide the "What's In It for Me?" This page also provides instruction on how to begin the module (i.e., click on a lesson title). The total number of pages as well as where the student is within that total is provided. See below:



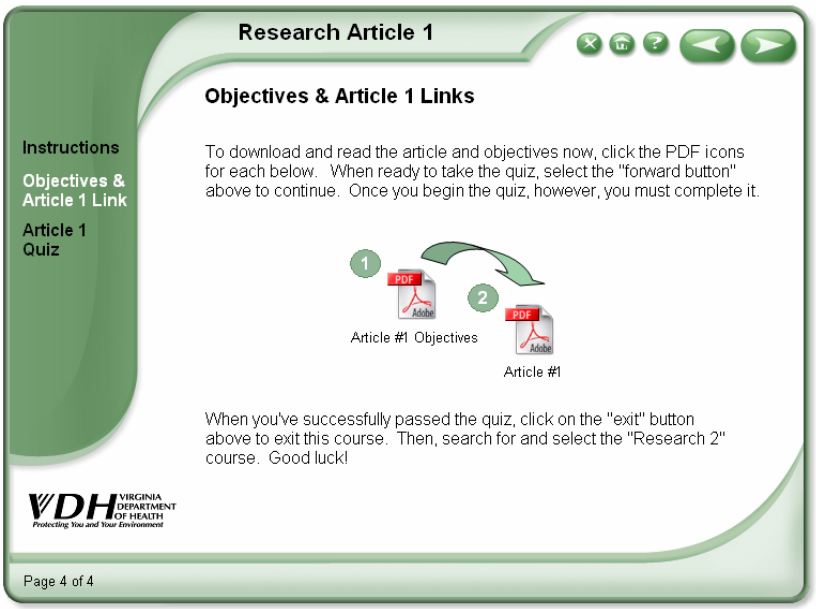
Knowledge Check. Use the standard interaction screens for all unscored, embedded practice exercises. See below:



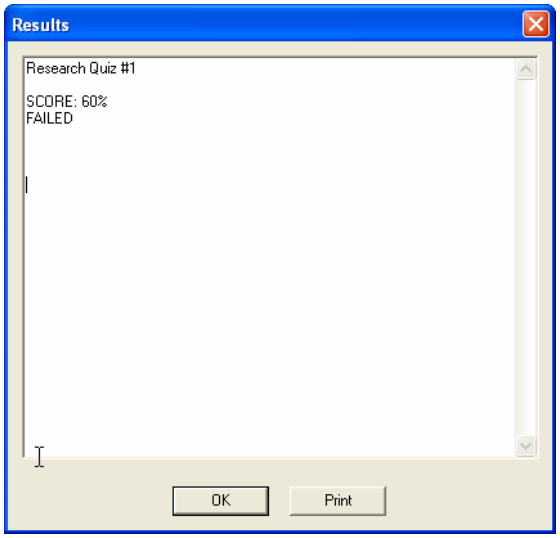
Module Summary Page. The module summary page wraps up the module. Module learning outcomes are paraphrased. This page also provides instruction on how to continue (e.g., select another module). If desired, one (the same) graphic may be used on every module summary page in a course.



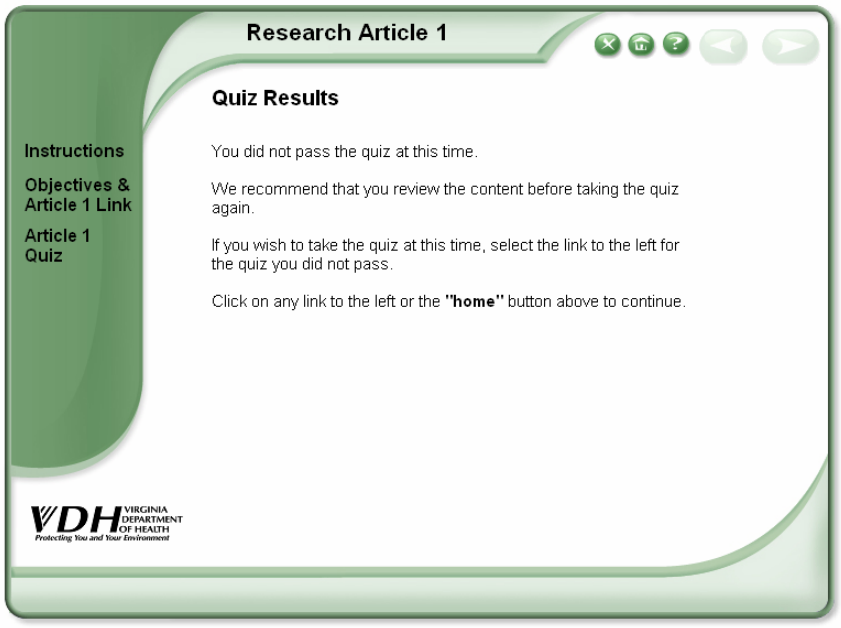
Module Test Intro Page. The module test intro page orients the learner to the module assessment. Clear instructions on how to take the test are provided. The number of questions in the test is stated. The test scoring page is explained. The learner is informed that the threshold for mastery is **85%** for each module test. This page also provides instruction on how to start the test (i.e., select the Next button). If desired, one (the same) graphic may be used on every module test intro page in a course.



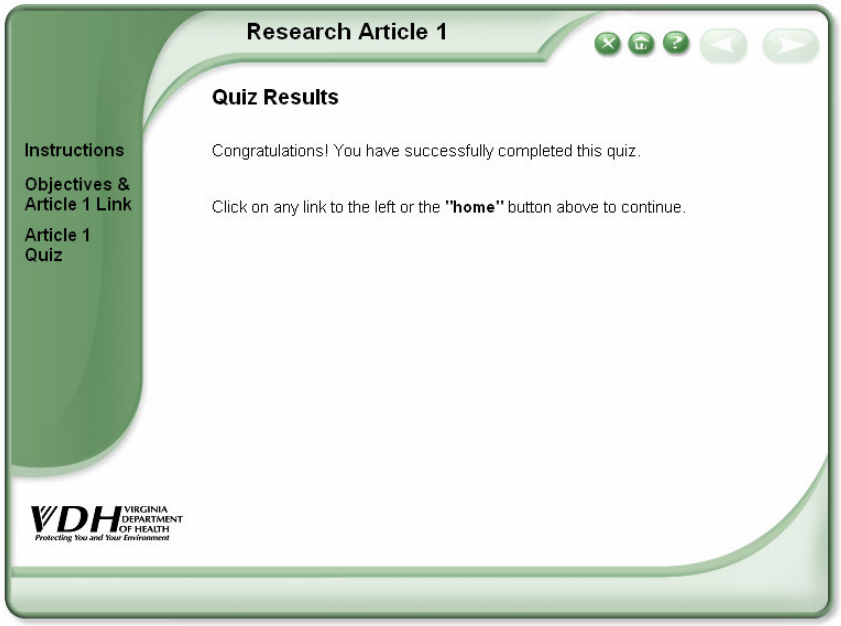
Module Test Summary Page. The module test summary page is the module "scorecard" for the learner. The learner's score on the module test is provided (expressed as a percentage). The learner is informed, in text, whether or not he/she passed the test. See below:



Quiz Results Screen. After each module quiz, the learner is taken to a Quiz Results screen where they are given instructions about where to go next. The learner is encouraged to revisit lessons of the module if he/she does not pass the quiz. See below:



When the learner scores 85% or higher on a module quiz, he/she is instructed to click Next to go to the course summary page. See below:



Graphical User Interface - Menu and Navigation

Menus and navigational elements help learners move through the courseware. Menus guide the learner to modules, lessons and topics while navigational elements allow for maneuvering through the courseware.

This section addresses the standards for:

- Menu organization
- Navigational elements

Menu Organization

- Course menu is provided on TRAIN.org, the VDH's LMS; modules are listed within each course.
- Provide clear instructions on how to use the menu
- Create the shortest module titles needed to convey meaning
- Use descriptive headings such as Module 1: Introduction and Overview
- Use the following common button naming rules:
    - Use Help to access navigational guidance
    - Use Glossary to provide access to a list of terms and definitions
    - Use Exit to end the course. Do not use Quit, End or Stop, which might refer to quitting the immediate exercise or module
    - Use Forward or Next and Back or Previous to designate page turning. Do not use Up or Down
    - Use complete page counters such as "1 of 30", not partial counters, such as "Page 5 that does not indicate how much longer the module will last

Navigation

Learners should spend time mastering the course objectives, not the course navigation. Navigation must be learner-friendly and must comply with the following standards:

- Provide learners with the ability to control all navigational activities
- Navigation must be intuitive for the learner
- Provide clear instructions or cues for all required learner activities
- Navigational elements should be formatted as buttons and should include the following functions:
    - Forward (or Next)
    - Back (or Previous)
    - Exit
    - Menu
    - Glossary (possibly a future add)
    - Tools (when applicable)
    - Help

Note: Other navigational buttons may be added, as appropriated

- The location of navigational buttons is specified in the standard VDH GUI
- The buttons should be consistent within each course and module; all buttons and icons should have a consistent and unique appearance

- Visual cues, such as mouse cursor changes and rollover highlights, used on all buttons should be consistent
- Navigation through the modules should be primarily learner controlled; however, a suggested sequence should be provided
- All buttons are labeled with text descriptions or with rollover text where appropriate
- Buttons should “gray out” or disappear when they are inactive
- All non button graphics should have design properties distinct from that of buttons
- Navigation buttons should be displayed in exactly the same position every time they appear
- Buttons are grouped logically and located where the learner is likely to be looking
- Learners should have one-click access to Help, Exit, etc.
- Modules and lessons can be completed in any order, unless the instructional design requires sequential accomplishment
- Identification of module and lesson titles as well as page numbers sequenced, as Page 1 of 20, should be utilized
- The program should track which modules have been completed and provide a visual reference to the learner of what he has completed in the courseware
- Learners should be able to bookmark their progress in a session (Lectora, a WBT authoring tool and used in at least one VDH WBT course, does this automatically)
- There should be three or fewer levels of menus (i.e., module, lesson, topic)
- Menu items should be listed in sequential or logical order

Media Standards

This section defines the standard look and feel for WBT and CBT courseware. These standards are used to maintain style consistency within the following areas:

- Screen Design
- Text
- Graphics
- Animation
- Audio
- Video

Screen Design

Use the following standards for general page design:

- Establish specific location for the presentation of instructions and prompts
- Provide recurring information in consistent locations
- Provide generous white space to separate blocks of text
- Avoid scrolling (window and/or text box), to the extent possible

Text

Use the following standards for text layout:

- Present information in a top down, left to right instructional format
- Limit the amount of text on page
- Use short lines of 40 – 60 characters; maximum of 60 characters per line
- Design text layout in short segments or phrases
- Use bullets, numbered lists, tables and charts to break up lengthy sentences
- Line up text under the first letter in any bulleted list, if the bulleted text wraps to a second line
- Do not indent paragraphs
- Left justify text

Use the following standards for text appearance:

- Use consistent color for text and graphics throughout the session
- User a san serif type font such as Ariel or Verdana:
    - 16-point for the course title
    - 14-point bold for Knowledge Check heading
    - 14-point bold for subheadings (page titles)
    - 11-point for instructional text
    - 8-point for instructions within the instructional area of the screen
- Break up blocks of text to make it easier for the learner to scan the content
- Underline hyperlinks only
- Use **bold** font or *italics* to emphasize a word or phrase.
- Do not use all capital letters or underlining to emphasize words or phrases

- Use standard Web conventions for hyperlinks (not yet selected, currently being selected, already been accessed)
- Do not use blinking text or repetitive animation

Layout

Overall page layout should conform to the screen capture below. Specifically, the instructional or content area of the screen should have a Lesson title, spacing between the title and the screen instructional text, the instructional text, and any media (image, audio/video/animation controller and/or window) all placed in such a way that makes appropriate use of the screen's white space.

The resulting screen layout should be pleasing to the eye, conform to left-to-right, top-to-bottom Western text standards, and should not cause confusion or dissonance with the learning objective. See below:

Graphics

Use the following standards for illustrations and photographs:

- Use the standard 216-color Cross Platform Web Safe color palette. A few years ago, when most computers supported only 256 different colors, a list of 216 Web Safe Colors was suggested as a Web standard. Although more and more computers are equipped with the ability to display millions of different colors, it is still advisable to conform to the use of the 216 Cross Platform Web Safe Colors. This 216 cross platform web safe color palette was originally created to ensure that all computers would display all colors correctly when running a 256 color palette.

See the 216 cross platform web safe color palette below:

- Use colors that accommodate color-blind learners; as such try to include at least one color-blind reviewer in all deliverables, especially in the review of the course screen design comps
- Establish and maintain a convention for the use of color(s) to denote meaning
- Maintain a constant perspective in a series of visuals
- Do not include contractor or other corporate logos in the courseware
- Avoid graphics that may become outdated in a short time
- Use clipart sparingly, if at all possible

- Do not use “cartoon” characters
- All text within the graphic must be readable.
- Be consistent with all graphics (with the use of borders, effects and quality)

- Make sure there is no advertising in the photo (i.e. car model name, billboard signs, license plates)

Animation

Use the following standards for animation:

- Allow user to control the start of the animation when possible
- Avoid timed effects. (If one or more events are to launch on a page, the learner should trigger the event. Events should not be timed to launch.)
- Do not use blinking graphics or text
- Use special effects when required for emphasis or transition; do not overuse
- Special effects (e.g., fly-in transitions, etc.) should not be used for "entertainment" value only. There should be some tangible and purposeful reason for their use; else do not use them
- Do not use any special effects that *detract* from learning
- Use animation to display concepts that are difficult to describe

Audio

Use the following standards:

- Use audio judiciously (e.g., to demonstrate interpersonal skills, to demonstrate sounds heard on the job, to engage the learner – such as providing a talking coach)
- Provide verbatim text that matches audio script
- Ensure that audio volume levels are consistent throughout the course
- Provide an audio "Replay" button when possible
- Use one audio talent throughout the course. If role-playing, multiple voice talent may be used, but roles must be consistent.
- Do **not** use sound effects

Video

Use the following standards to select video for courseware:

- Use video to reinforce, clarify or emphasize a specific behavior or performance objective that cannot be effectively taught using graphics, stills, photographs or animation
- Do not use continuous video clips (more than 15-20 seconds in length) because of file size
- Provide a "Replay" button when appropriate
- Use appropriate video (e.g., talking head, show and tell, interview, panel discussion, simulation or dramatization)
- Because buffering problems tend to hinder streaming media performance, where possible, avoid traditional techniques such as zooming, panning, transitional wipes, dissolves, and fast motion subjects

Technical Standards

This section describes standards for specific technical issues related to the courseware. This section includes the following topics:

- Hardware
- Authoring tools
- Data file structure
- Installation

In addition to these standards, all web development and computer security standards specified by VITA must be followed.

Hardware

The courseware must be designed to perform on the standard hardware configuration in use at the time of development.

Information to determine minimum configuration should include the following specifications:

- Operating system: Windows 2000 and up
- Minimum processor speed: 328 MHz
- Standard screen resolution and color depth 800 x 600, 16 bit

Browser Specification

- Internet Explorer 6.0 or newer
- Note: Keep in mind that some users may access the courseware over a 56K modem.

Authoring Tools

Courseware should be developed using non-proprietary authoring tools.
Some examples include:

- Lectora Enterprise Edition
- Articulate Presenter v5 / Quizmaker v2
- Dreamweaver
- Flash
- JavaScript
- Shockwave

Data File Structure

- Storage formats shown below are examples of the file types.
- Each page must load in no more than xx seconds on a 56K modem. (To be tested during courseware development/beta testing.)

Audio

- WAV format
- MP3 format

Video

- Compressed digital files – Shockwave, AVI, QuickTime, MPEG, Real Media, Windows Media Player

Graphic and Photos

- Compressed, processed files with ALT text descriptions for Section 508 – JPEG, GIF, PNG – are acceptable for web delivery or CD-ROM
- Adobe Photoshop file format with layers is also acceptable for uncompressed files. Adobe illustrator is acceptable for uncompressed files

Bookmarking

Bookmarking with SCORM is handled through a client-side API. The communication portion of SCORM was borrowed from AICC, so this should be the same for either format. In general, there is an API call (e.g., lesson location) that communicates back to the LMS where in the course the student is upon exit. In TRAING.org, that course would reside in the learner's development plan with a status of In Progress. When the learner reopens the module, it should ask the learner if he/she wishes to return to the spot where he/she left off. If they choose not to go back to the "bookmark", they will be taken to the initials screen (e.g., Title screen) for that module.

Learning Management System (LMS)

The VDH LMS is TRAIN.org and service is provided by the Public Health Foundation (**PHF**).

Course developers are expected to read the TRAIN LMS Reference Guide (PDF document) prior to developing and installing any courseware on TRAIN. Course must be developed to these specifications, found at:

https://va.train.org/DesktopModules/Documents/ViewDocument.aspx?DocumentID=327

There is also a Learner User's Guide available that should be made available to all learners before embarking on TRAIN.org for the first time, found at:

http://vdhweb/EPR/Word/TrainUsersGuide.doc

Web Hosting Server

The VDH has purchased and installed a server for the development and deployment of its e-learning courseware. More to come on the specifics of this server and any such requirements of

courseware developers. Please contact Robert Johnson (804.864.7964) for more information at this time.

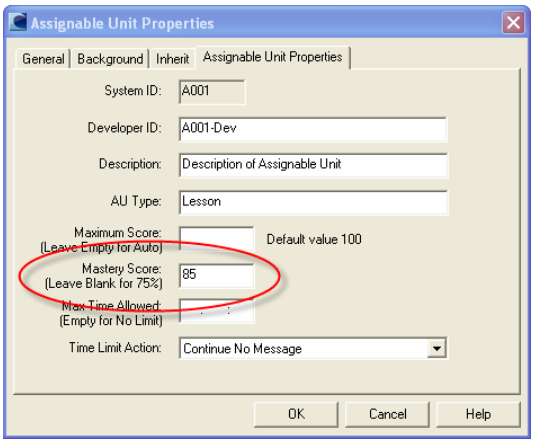
Learner Access to Level 1 Evaluation

TRAIN.org does not have the capability currently to administer course evaluations via the LMS itself. You can direct learners to complete a course evaluation and submit it via email to a central contact for that course. Such an evaluation that can be adapted for e-learning can be found at:

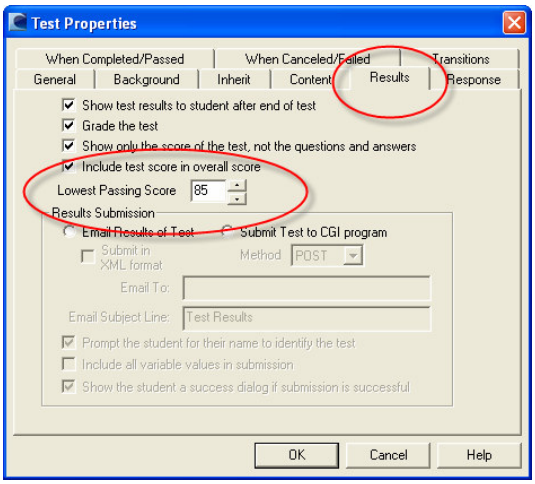
https://va.train.org/DesktopShell.aspx?tabid=5&documentCategoryId78=12&searchOrCat=category

Passing Test Scores to the LMS

With a course built in AICC/SCORM, the score is applied at the content object level. Each new attempt at the post test will overwrite the previous score value. TRAIN.org The passing score for a course and/or module level assessment can be set within the authoring system used to develop the course. The DIS Certification Course has a passing score set to **85%** for each module which comprise the overall DIS Certification course. This is a setting made within Lectora at the course level (within an Assignable Unit Properties object), as shown below:



Mastery can also be set at the quiz level (Test Properties object) within Lectora. See below:



Analysis and Design Deliverables

Create all analysis and design documents in:

- MS Word 2003 files (Instructional Design Plans, Storyboards, etc.)
- MS PowerPoint (Storyboards, if preferred)
- Visio (site maps)
- MS Excel or MS Project (project plans)

Writing Standards

The section provides standards to be used when screen text for e-learning courseware. Use the following standards for text language:

- Use active voice, second person (you), present tense, and conversational tone when appropriate
- Keep language simple, concise and consistent
- Write to an 8th Grade reading level (use MS Word's Flesh-Kincaid Readability Index calculation to manage the appropriate reading levels)
- Do not use hyphens to break words
- Avoid jargon and slang
- Use examples that are universally understood
- Avoid references that learners with English as a second language would have difficulty understanding
- Avoid the use of contractions (unless the course is consistently conversational in style)
- Avoid language and examples that will reduce the shelf life of the courseware (e.g., dates, references to current events)
- Avoid using all capital letters. Learners have more difficulty reading text that is all capitalized than mixed-case letters (and learners perceive all-cap type as being yelled at)
- Italic should only be used for titles of published works and words that are appropriated from other languages and have not become standard English (e.g., détente)
- Use "click" (not "click on") in learner prompts

Acronyms and Abbreviations

- To introduce an acronym for the first time on a page, write out the full name of the entity, followed by its acronym in parentheses
- Acronyms do not include spaces or periods
- Abbreviations should be used when using titles before and after names (e.g., Mr., Mrs., PhD)
- Abbreviations should be used when the acronym for a corporation, institution or country is more familiar than the full name (e.g., USA, IBM, FBI)
- Abbreviations should be used for mathematical measurements (e.g., lb., kg.)

Punctuation

Punctuation Type	Standard
Spaces after punctuation	Use one space after periods and colons
Commas	Do not use serial commas immediately preceding "and" or "or" (a serial comma is the last comma in a series of items)

Punctuation Type	Standard
Hyphens	Use a hyphen to connect words in a sequence (e.g., 2003-2004, pp. 28-72) Do not use hyphens to separate syllables within a word Do not use hyphens to connect two related parts of a sentence
Quotation Marks	All punctuation goes inside the punctuation marks
Bullets - symbols	Establish and adhere to a standard symbol for first and second level bullets
Em Dash	Do not use an Em Dash. The em dash is the mark of punctuation most of us think of when we hear the term "dash" in regard to a sentence. It is significantly longer than the hyphen.
En Dash	Use an En Dash to connect related parts of a sentence (e.g., VDH expects the vendor to ensure – through thorough quality testing – compliance to this Guide, SCORM/AICC, and Section 508.) Use a space before and after an En Dash (as shown in example above). The en dash is slightly longer than the hyphen but not as long as the em dash. (It is, in fact, the width of a typesetter's letter "N," whereas the em dash is the width of the letter "M"—thus their names.) The en dash means, quite simply, "through." We use it most commonly to indicate inclusive dates and numbers: July 9–August 17; pp. 37–59. An en dash is the same length as the small letter “n.”

Bullets

- Maintain parallel construction in a bullet list (e.g., start all bulleted items with a verb)
- Bulleted or numbered lists in a training module should be no more than two levels deep
- Use numbered bullets where sequence is important; use symbols for bullets when order is not important
- Use a colon at the end of the introductory sentence (i.e., stem of before bullet list)
- Capitalize the first word in each bulleted phrase or sentence
- Learning Objectives, even when stated in a complete sentence, should not end with periods
- Begin phrases (bulleted items that are not complete sentences) with caps and end without punctuation
- Do not use “and” or “or” in bulleted sequences
- Do not use a comma after each bulleted item
- Do not put a period at the end of the last bullet in a list of bulleted items
- Do not use a bullet (number or symbol) when there is only one item; there must be at least two items to make a bullet list.

Numbers

- Use figures to express the numbers 10 and above, all numbers representing mathematical functions or quantities, dates, ages, time, money, and numbers as part of a series
- Spell out the numbers nine and below unless they represent precise measurement (e.g., 8.2578) or are part of a complex mathematical formula
- Spell out any number that begins a sentence, title, or heading

Date and Time

- Write out the date in full (e.g., July 4, 1776)
- Use a colon to separate hours and minutes (e.g., 9:00 a.m.)

Capitalization

- In headlines, capitalize all words except definite/indefinite articles, prepositions and conjunctions that are shorter than four letters.
- When using bullets, capitalize the first word contained in each bullet
- Capitalize the word “State” whenever referring to one of the 50 States
- Capitalize the word “Federal” as in Federal Government
- Do not capitalize the word “federally”

Emphasis

- Avoid excessive use of bolding (it can be distracting and should be reserved for headings)
- Do not use italics for emphasis (they are hard to read on screen, and are used specifically for citations)
- Do not underline (it can be confused with a hyperlink)
- Do not use quotation marks
- Use headings and subheadings to draw attention to specific concepts

For all other writing style guidelines, refer to the **Publication Manual of the American Psychological Association: Fifth Edition,** which can be found at: http://www.apastyle.org/.

Assessment Standards

This section provides general guidance on the assessment of learner mastery of course content.

Level One Evaluation

Upon completion of all module tests/quizzes in a course/module, learners will be encouraged, and in some cases, required to complete a Level 1 Course Evaluation, on line.

The learner accesses the course evaluation via instructions within the course or module itself. Both Lectora and Articulate/Quizmaker, for example, have built in assessment development tools that allow the course developer to build and then deliver assessments as part of a course and/or module or as a standalone assessment. Choose the option (built-in or stand-alone) as required. However, built-in assessments require less thought and navigation on the part of the learner and are often times preferred to stand-alone assessments as a result.

Level Two Evaluation

If the VDH chooses at some point to qualify for IACET continuing education credits (CEUs) (see: http://www.iacet.org/), all VDH courseware must include an assessment of the learners' mastery of the course learning outcomes. It is VDH's expectation that all course/module design documents will state:

- A course goal, and
- Learning Objectives

Generally speaking, the course goal appears on the Course Intro pages and the learning objectives are paraphrased on the Module Welcome page(s).

All learning objectives must be tested.

The threshold for mastery has been currently established at 85% for each module test.

Learners may take each quiz as many times as they wish. Each quiz will be automatically generated from a pool of question items. The quiz presented to the learner will generally be a subset of that total pool of question items and randomized so that each test presented is somewhat unique, to discourage the sharing of quiz answers to other learners. Each time a quiz is completed, the score for that learner, for that quiz, gets overwritten within the LMS.

Whenever a learner returns to the course menu, any modules associated with tests that were successfully passed will be clearly marked as being completed. This will allow the learner to better track their progress throughout the course.

The VDH LMS, TRAIN.org is the training database that will track the learners' progress through online courses, as well as their pass/fail status on the course tests. Only after a learner successfully passes all module tests will the LMS reflect a "passing" status for a course.

Levels Three and Four Evaluation

Though not required, VDH welcomes discussion of performance evaluation at levels three and four.

SCORM Considerations

SCORM Overview

SCORM assumes the existence of a LMS. The LMS launches learning content, keeps track of learner progress, figures out in what order (sequence) learning objects are to be delivered, and reports student mastery through an e-learning course. An LMS is smart enough to know what is to be delivered to the learner, when he/she has mastered a skill or competency, and can branch to the right content when needed (e.g., for remediation). Regular web content and servers don't know how to do this.

SCORM is needed to standardize how to launch and track directed learning experiences, and to define the intended behavior and logic of complex learning experiences so content can be reused, moved, searched for, and recontexualized. Simple hyper-linked web sites don't need SCORM because users aren't being tracked and assessed for skill/competency mastery.

SCORM is like a bookshelf housing volumes (specifications) that originated in other organizations including ARIADNE, AICC, IMS and IEEE. However, these specifications have been extended and additional detail and implementation guidance has been added. SCORM is, therefore, more than just a collection of others work, though it directly relies on the source specifications.

SCORM has three parts:

1. Overview - about the model, vision and future
2. Content Aggregation Model - how to put learning content together so it can be moved and reused.
3. Run Time Environment: How content is launched and the learner's progress is tracked and reported back.

What's important for the e-learning course developer is the second bullet above: how to design and develop course content that is SCORM compliant. An instructional designer should know that the typical instructional design process does not change for a project to create SCORM conformant content. SCORM considerations by project phase:

Phase	Considerations
Discover/Define	• Verify that the content will be deployed in a SCORM conformant LMS. If a SCORM conformant LMS will not be available, re-evaluate the requirement for SCORM conformant content. • Review the Data Model Element section of the SCORM 2004 Run-Time Environment Version 1.3 to learn about the data tracking opportunities. Determine the data tracking requirements for the content. • Identify potential secondary audiences for content. Determine which sections of the content can be shared by multiple audiences. • Identify an appropriate strategy for recording meta-data and storing content in a repository. Meta-data enables learning resources to be described in a common way so that they can be searched in a repository and retrieved for reuse.

Phase	Considerations
Design	• Chunk your content so that sections can be reused. • Collaborate with technical developers who are familiar with the SCORM to determine the best way to organize the content to meet the project requirements. • Design Sharable Content Objects (SCOs) for content that requires data about the learner's experience with the SCO to be tracked. • Design assets for content that is launched by the LMS but does not require data to be tracked about the learner's experience.
Development	For content that will be reused: • Storyboard the content so that it can stand alone. For example, do not refer to a previous lesson if it appears in a different SCO. • Determine how the reusable content can be effective without context-specific information. Or, provide context-specific information externally from that content.

For further reading on this topic, visit: http://www.adlnet.org/. ADL is the governing body that stipulates the SCORM standards, provides SCORM testing/certification, and is the ultimate definitive source on the subject.

All VDH e-learning courses should be developed to the basic SCORM standards. Again, see the ADL link above for what this means.

Section 508 Compliance

This section provides information relevant to Section 508. All VDH technology-based training products must be in compliance with these standards.

The following statement summarizes Section 508, Part 1194.21 regarding software applications and operating systems:

> *Most of the specifications for software pertain to usability for people with vision impairments. For example, on provision requires alternative keyboard navigation which is essential for people with vision impairments who cannot rely on pointing devices, such as a mouse. Other provisions address animated displays, color, and contrast settings, flash rate, and electronic forms, among others.*

508 Compliance Standards

Courses must be accessible to persons with disabilities in accordance with section 508 of the Rehabilitation Act Amendments of 1998. Proposals should address how the course would meet the requirements of this Act.

The Final Rule, Electronic and Information Technology Accessibility Standards, published in the Federal Register on December 21, 2000, provides guidance on how a developer can meet these requirements (see, 36 CFR Part 1194 [Docket no. 2000-01] RIN 3014-AA25). There are also a number of readily available resources on the Rehabilitation Act including several web sites. See, for example, www.section508.gov and www.access-board.gov. Additionally, a number of organizations provide technical information on making websites accessible for the disabled. Such organizations include but are certainly not limited to:

- The Web Consortium (www.w3.org)
- The HTML Writers Guild (www.hwg.org)
- The Rochester Institute of Technology's Equal Access to Software and Information website (www.rit.edu/~easi/)
- The University of Wisconsin-Madison's Trace Research and Development Center (www.trace.wisc.edu)

The requirements for Web-based applications as described in § 1194.22 the December 21, 2000 Final Rule, e.g.:

> (a) A text equivalent for every non-text element shall be provided (e.g., via "alt", "longdesc", or in element content).
> (b) Equivalent alternatives for any multimedia presentation shall be synchronized with the presentation.
> (c) Web pages shall be designed so that all information conveyed with color is also available without color, for example from context or markup.
> (d) Documents shall be organized so they are readable without requiring an associated style sheet.
> (e) Redundant text links shall be provided for each active region of a server-side image map.
> (f) Client-side image maps shall be provided instead of server-side image maps except where the regions cannot be defined with an available geometric shape.
> (g) Row and column headers shall be identified for data tables.
> (h) Markup shall be used to associate data cells and header cells for data tables that have two or more logical levels of row or column headers.
> (i) Frames shall be titled with text that facilitates frame identification and navigation.

(j) Pages shall be designed to avoid causing the screen to flicker with a frequency greater than 2 Hz and lower than 55 Hz.
(k) A text-only page, with equivalent information or functionality, shall be provided to make a Web site comply with the provisions of this part, when compliance cannot be accomplished in any other way. The content of the text-only page shall be updated whenever the primary page changes.
(l) When pages utilize scripting languages to display content, or to create interface elements, the information provided by the script shall be identified with functional text that can be read by assistive technology.
(m) When a Web page requires that an applet, plug-in or other application be present on the client system to interpret page content, the page must provide a link to a plug-in or applet that complies with § 1194.21 (a) through (1).
(n) Whenever electronic forms are to be completed online, the forms shall allow people using assistive technology to access the information, field elements, and functionality required for completion and submission of the form, including all directions and cues.
(o) A method shall be provided that permits users to skip repetitive navigation links.
(p) When a timed response is required, the user shall be alerted and given sufficient time to indicate more time is required.

Quality Assurance

This section describes VDH's expectations for quality assurance efforts performed by development teams.

It is VDH's expectation that the development team will conduct quality assurance testing on all deliverables prior to submission to VDH. Quality assurance is to be performed on all draft and final deliverables from each phase of the development process.

In particular, VDH expects the development team to:

- Ensure that all teaching and testing strategies comply with the standards provided in this Guide
- Ensure that all text complies with the standards provided in this Guide
- Ensure that all media with the standards provided in this Guide
- Conduct Alpha test on all supported operating systems and browsers
- Perform LMS integration testing
- Conduct thorough quality assurance testing on Alpha, Beta, and Final versions

The role of VDH is to review for **content** accuracy. VDH expects the development team to ensure – through thorough quality testing – compliance to this Guide, SCORM/AICC, or Section 508.